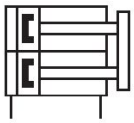
Mini slide, Series MSC-HG-EM

R480643827

AVENTICS Series MSC Guide cylinders

The AVENTICS Series MSC mini slides have a compact design, require minimal installation space and can be optimally configured for virtually any automated handling task. A wide range of configuration options make the mini slide a truly universal handling component. Precise and reliable operation, coupled with a custom configuration and tailored to the specific application – these attributes allow the mini slides to assume the actuator role in efficient handling. The Series MSC offers high torque absorption and maximum stability. In addition, it provides technical features that guarantee optimally adjusted functions and maintenance-friendly processes. Fast, secure and efficiently connected with the special Easy-2-Combine Interface, the mini slides can be combined with the other components of a handling system without additional mounting plates.



Technical data

Industry	Industrial
Note	Archive product: Do not use in new constructions!
Piston Ø	25 mm
Stroke	125 mm
Functional principle	Double-acting
Easy2Combine	capable
double piston	with double piston
Port	G 1/8
Cushioning	Elastic with metal end stop
Min. working pressure	3 bar
Max. working pressure	10 bar
Min. ambient temperature	0 °C
Max. ambient temperature	60 °C
Medium	Compressed air
Retracting piston force, theoretical	520 N
Extracting piston force, theoretical	619 N
Max. speed	0.8 m/s
Cushioning length	2.5 mm
Cushioning energy	0.4 J

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Min. oil content of compressed air	0 mg/m³
~~Max. oil content of compressed air~~	~~1 mg/m³~~
Max. particle size	5 µm
Pressure for determining piston forces	6,3 bar
with integrated ball rail guide	With integrated “High Performance” ball rail system
Weight	4.75 kg

Material

Housing material	Aluminum
Surface housing	anodized
Material piston rod	Stainless Steel
Material front plate	Aluminum
Surface front plate	anodized
Seal material	Polyurethane
Material ball rail table	Aluminum
Surface ball rail table	anodized
Material guide rail	Steel, chrome-plated
Surface guide rail	hardened
Material centering rings	Stainless Steel
Part No.	R480643827

Technical information

Repetitive precision after 100 consecutive strokes: 0,02 mm

Base with air connections at the back and sides

Intermediate strokes can be configured.

Scope of delivery: incl. centering rings

R1 = stroke setting range for forward stroke

R2 = stroke setting range for return stroke

Ø 8 has a different reference plane.

The pressure dew point must be at least 15 °C less than ambient and medium temperature and may not exceed 3 °C.

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the “Technical information” document (available in https://www.emerson.com/en-us/support).

Dimensions

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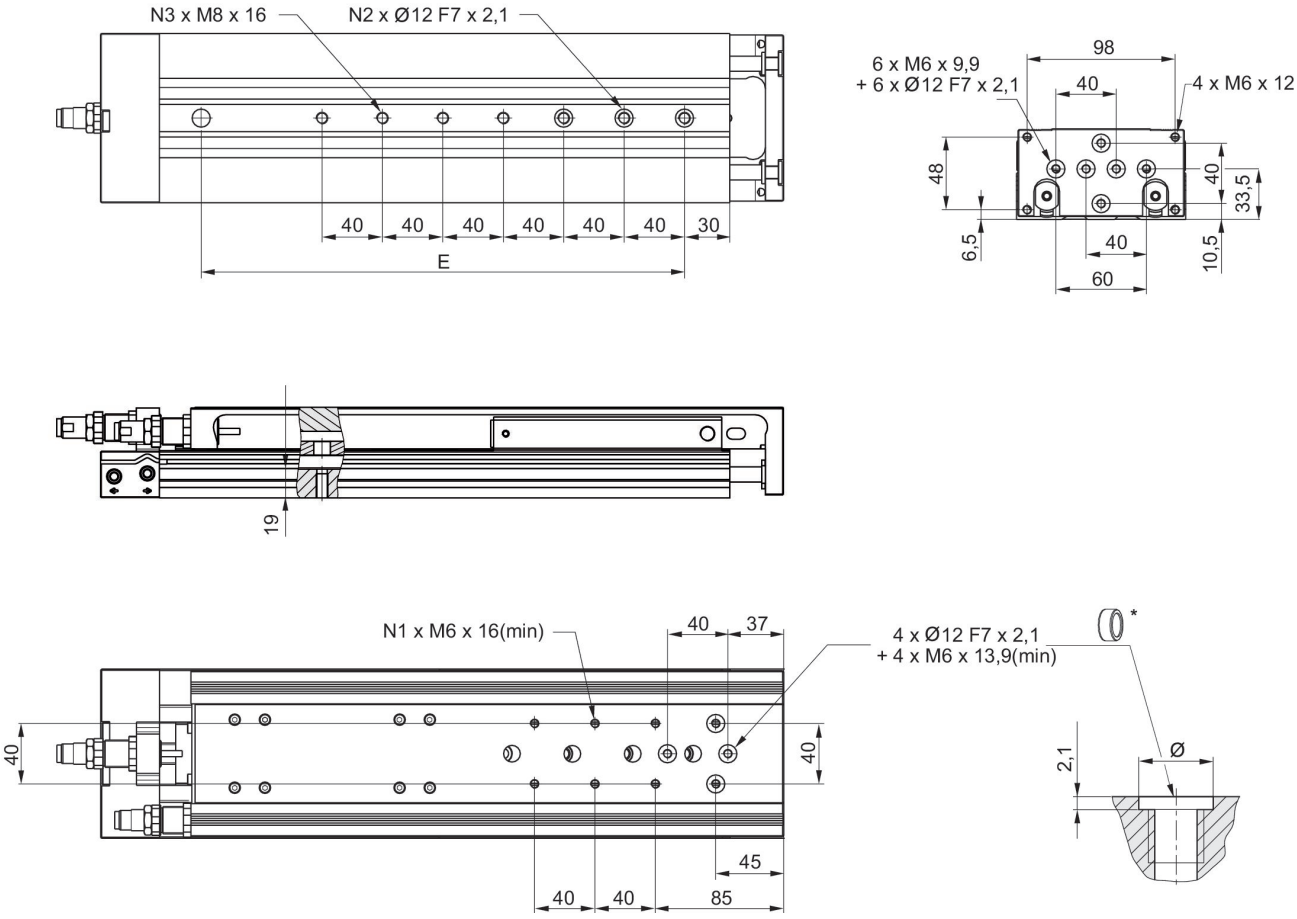
MSC-25



* = centering rings

Part No.	Piston Ø	Stroke	E	N1	N2	N3
R412019030	25	125	200	4	4	5
R480643827	25	125	200	4	4	5
R412019041	25	125	200	4	4	5
R480640211	25	125	200	4	4	5
R412019031	25	150	240	6	4	5
R480643828	25	150	240	6	4	5
R412019042	25	150	240	6	4	5
R480640212	25	150	240	6	4	5
R412019032	25	200	320	6	4	7
R480643829	25	200	320	6	4	7
R412019043	25	200	320	6	4	7
R480640213	25	200	320	6	4	7

Dimensions

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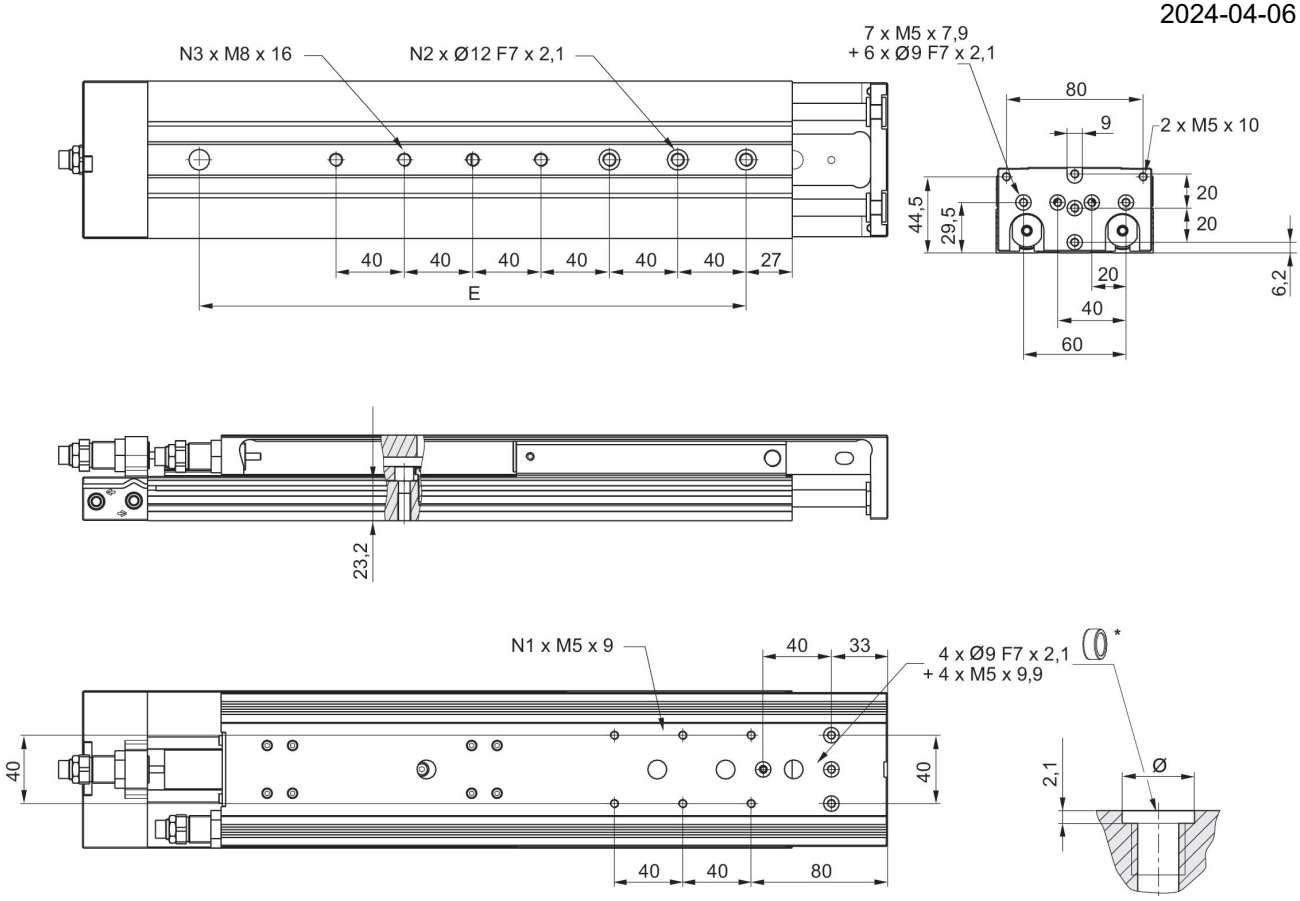
MSC-20



* = centering rings

Part No.	Piston Ø	Stroke	E	N1	N2	N3
R412018917	20	125	200	6	4	5
R480643817	20	125	200	6	4	5
R412019005	20	125	200	6	4	5
R480640205	20	125	200	6	4	5
R412018918	20	150	240	6	4	5
R480643818	20	150	240	6	4	5
R412019006	20	150	240	6	4	5
R480640206	20	150	240	6	4	5
R412018919	20	200	320	6	4	7
R480643819	20	200	320	6	4	7
R412019007	20	200	320	6	4	7
R480640207	20	200	320	6	4	7

Dimensions

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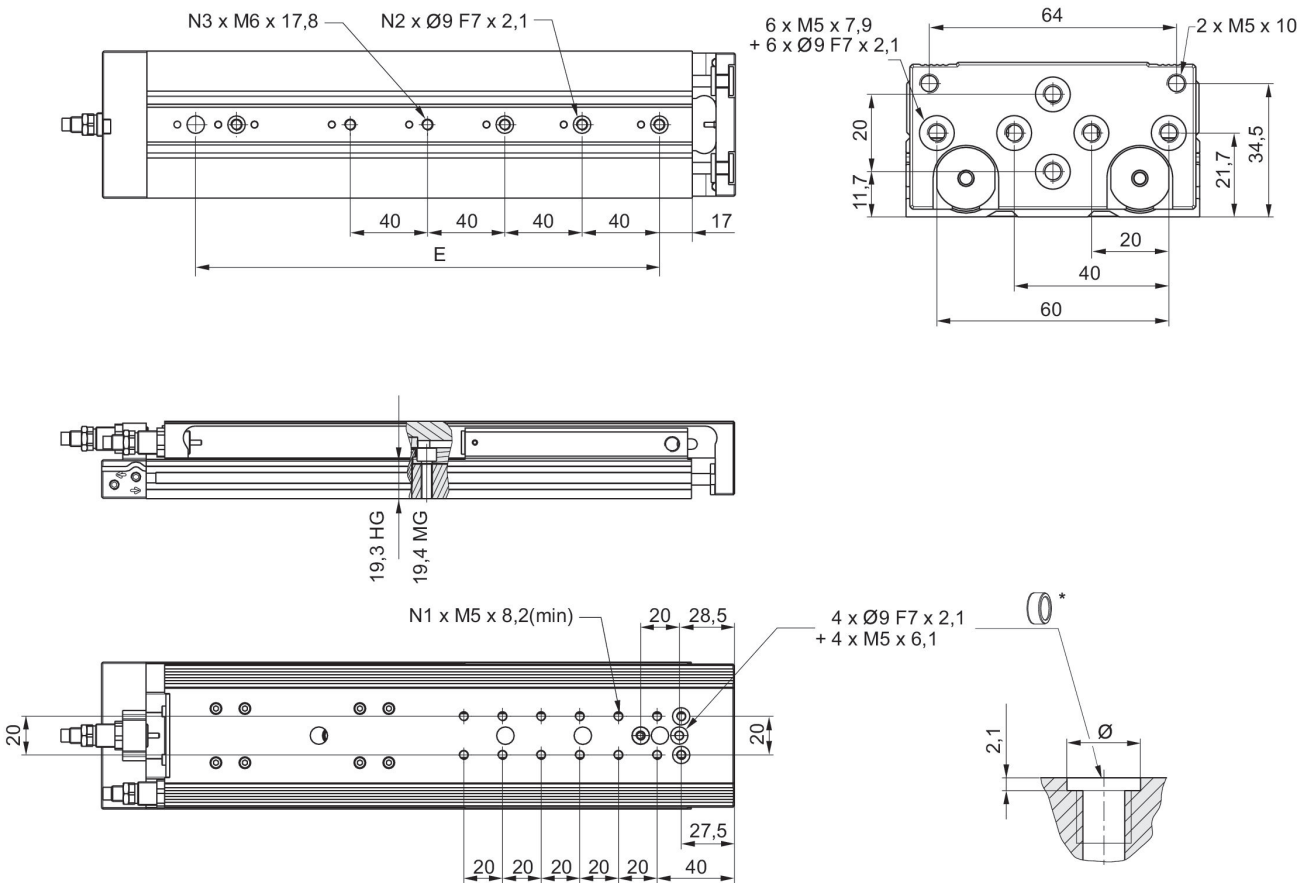
MSC-16



* = centering rings

Part No.	Piston Ø	Stroke	E	N1	N2	N3
R412019175	16	125	200	12	4	5
R480643808	16	125	200	12	4	5
R412019188	16	125	200	12	4	5
R480640200	16	125	200	12	4	5
R412019176	16	150	240	12	4	5
R480643809	16	150	240	12	4	5
R412019189	16	150	240	12	4	5
R480640201	16	150	240	12	4	5

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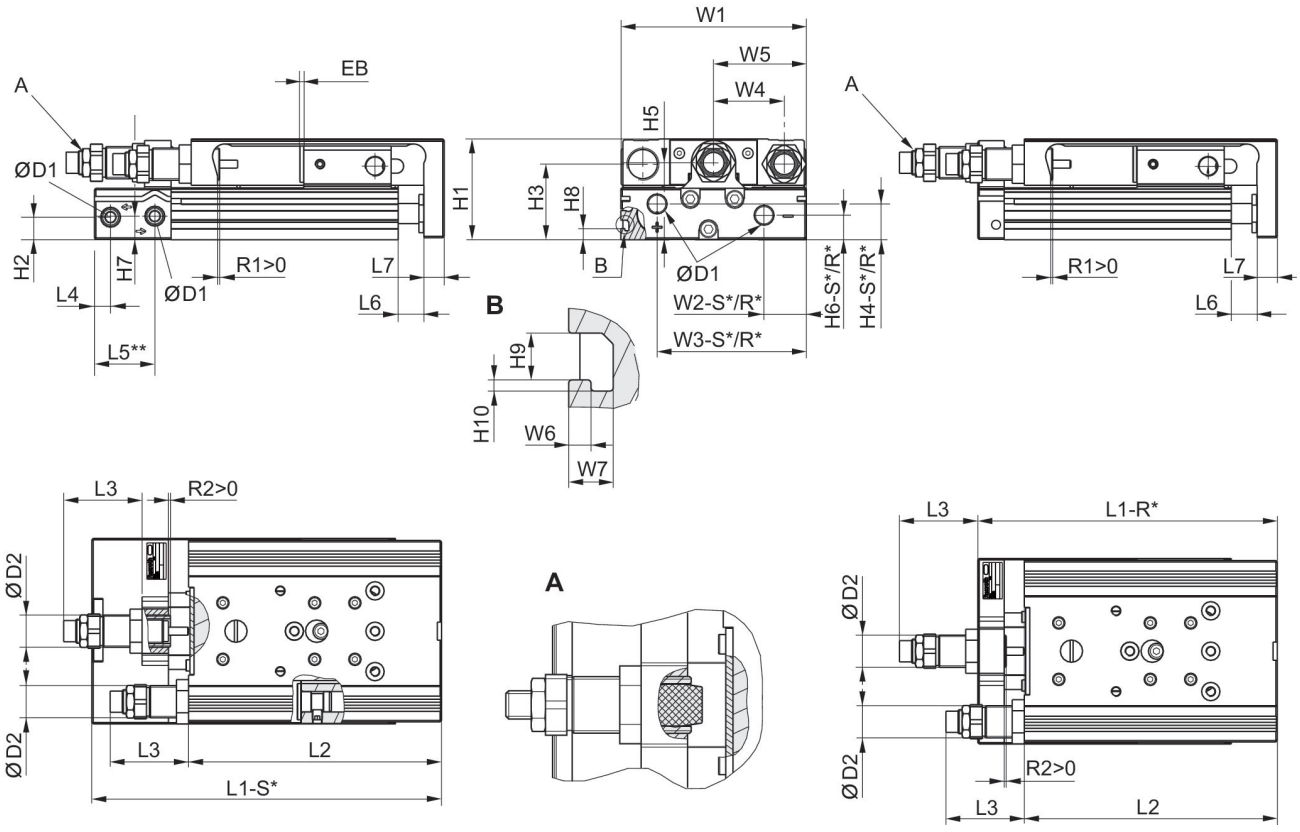
Dimensions



R*: base with air connections only at the back
S*: base with air connections at the back and sides
** Ø 8 has a different reference plane.

Piston Ø	Ø D1	Ø D2	H1	H2	H3	H4-R	H4-S	H5	H6-R
8	M5	M10x1	28	9.6	20.5	-	7.5	19.5	-
12	M5	M12x1	34	5.7	25	11.2	11.2	24.5	5.7
16	M5	M12x1	40	7.2	29	12.2	12.2	31	7.7
20	G 1/8	M16x1,5	50	11.2	37.5	17.3	17.3	38.2	11.7
25	G 1/8	M18x1,5	60	14.2	44	15.5	22.9	46.5	13.2

Piston Ø	H6-S	H7	H8	H9	H10	L3 max.	L4	L5 2)	L6
8	5.5	18	-	-	-	27.8	9.8	–	1.9
12	5.7	8.3	-	-	-	31.8	7.2	22.5	2
16	7.7	11.2	-	-	-	30	6.5	17.7	2
20	12.2	11.7	5.5	4.2	1	43.7	8	30	2.1
25	21.7	16.2	6.9	5.2	1.5	41.9	9	31	2.1

Piston Ø	L7	R2 max.	W1	W2-R	W2-S	W3-R	W3-S	W4	W5
8	6	4.1	50.2	–	19.3	–	30.5	18	W1/2

Piston Ø	L7	R2 max.	W1	W2-R	W2-S	W3-R	W3-S	W4	W5
12	8	12	66	28.8	28.8	53	53	24.5	W1/2
16	10	10.4	76	31	31	60.5	60.5	30	W1/2
20	10	14	92	10	21	74	74	35	W1/2
25	12	16.2	112	11	14	92	92	44	W1/2

Piston Ø	W6	W7
8	–	–
12	–	–
16	–	–
20	2	4
25	2.5	4.8

Stroke-dependent dimensions

Piston Ø	S=10 EB	S=20 EB	S=30 EB	S=40 EB	S=50 EB	S=80 EB	S=100 EB	S=125 EB	S=150 EB
8	12	2	2	2	2	2	–	–	–
12	22	12	2	2	2	2	2	–	–
16	22	12	2	2	2	2	2	2	2
20	22	12	2	2	2	2	2	2	2
25	22	12	2	2	2	2	2	2	2

Piston Ø	S=200 EB	S=10 L1-R	S=20 L1-R	S=30 L1-R	S=40 L1-R	S=50 L1-R	S=80 L1-R	S=100 L1-R	S=125 L1-R
8	–	–	–	–	–	–	–	–	–
12	–	101	101	101	111	126	172	192	–
16	–	103.5	103.5	103.5	113.5	128.5	174.5	194.5	283
20	2	115	115	115	125	140	185	205	289.5
25	2	128.5	128.5	128.5	138.5	151.5	197.5	217.5	294.5

Piston Ø	S=150 L1-R	S=200 L1-R	S=10 L1-S	S=20 L1-S	S=30 L1-S	S=40 L1-S	S=50 L1-S	S=80 L1-S	S=100 L1-S
8	–	–	81.7	81.7	91.7	101.7	121.7	171.7	–
12	–	–	117.9	117.9	117.9	127.9	142.9	188.9	208.9
16	308	–	114.4	114.4	114.4	124.4	139.4	185.4	205.4
20	329.5	404.5	139.9	139.9	139.9	149.9	164.9	209.9	229.9
25	334.5	409.5	152.2	152.2	152.2	162.2	175.2	221.2	241.2

Piston Ø	S=125 L1-S	S=150 L1-S	S=200 L1-S	S=10 L2	S=20 L2	S=30 L2	S=40 L2	S=50 L2	S=80 L2
8	–	–	–	73.5	73.5	83.5	93.5	113.5	163.5
12			–	88.8	88.8	88.8	98.8	113.8	159.8
16	293.9	318.9	–	90.4	90.4	90.4	100.4	115.4	161.4
20	314.4	354.4	429.4	100.5	100.5	100.5	110.5	125.5	170.5
25	318.2	358.2	433.2	111.5	111.5	111.5	121.5	134.5	180.5

Piston Ø	S=100 L2	S=125 L2	S=150 L2	S=200 L2	S=10 R1 max.	S=20 R1 max.	S=30 R1 max.	S=40 R1 max.	S=50 R1 max.
8	–	–	–	–	4.2	4.2	4.2	4.2	4.2
12	179.8	–	–	–	5.7	5.7	5.7	5.7	5.7
16	181.4	269.9	294.9	–	8.7	8.7	8.7	8.7	8.7

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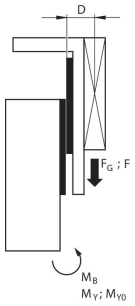
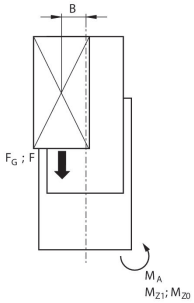
Piston Ø	S=100 L2	S=125 L2	S=150 L2	S=200 L2	S=10 R1 max.	S=20 R1 max.	S=30 R1 max.	S=40 R1 max.	S=50 R1 max.
20	190.5	275	315	390	12.4	12.4	12.4	12.4	12.4
25	200.5	277.5	317.5	392.5	11.5	11.5	11.5	11.5	10.5

Piston Ø	S=80 R1 max.	S=100 R1 max.	S=125 R1 max.	S=150 R1 max.	S=200 R1 max.
8	4.2	–	–	–	–
12	5.7	5.7	–	–	–
16	8.7	8.7	8.7	8.7	–
20	12.4	12.4	12.4	12.4	12.4
25	11.5	11.5	11.5	11.5	11.5

Correction factor (a, d)
vertical



stat.	$M_{B0} = (F_G + F) \cdot D$
dyn.	$M_B = F_G \cdot D$

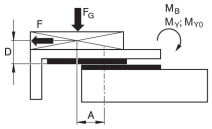


stat.	$M_{AO} = (F_G + F) \cdot B$
dyn.	$M_A = F_G \cdot B$

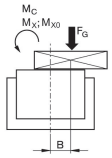
dyn.	$\frac{M_A}{M_1} + \frac{M_B}{M_2} \leq 1$
stat.	$\frac{M_{A0}}{M_{Z0}} + \frac{M_{B0}}{M_{Y0}} \leq 1$

F = m • a FG = m • g a = 1250•V²/H
F = deceleration force [N] F_G = force due to weight [N] m = load mass [kg] a = deceleration [m/s²] g = gravitational acceleration 9,81 [m/s²] V = velocity [m/s] H = stroke length of shock absorber [mm]

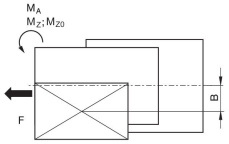
Correction factor (a, d)
horizontal



stat.	$M_{B0} = F_G \cdot A + F \cdot D$
dyn.	$M_B = F_G \cdot A$



stat.	$M_{CO} = F_G \cdot B$
dyn.	$M_C = F_G \cdot B$



stat.	$M_{A0} = F \cdot B$
dyn.	$M_A = 0$

dyn.	$\frac{M_A}{M_1} + \frac{M_B}{M_2} + \frac{M_C}{M_3} \leq 1$
stat.	$\frac{M_{A0}}{M_{Z0}} + \frac{M_{B0}}{M_{Y0}} + \frac{M_{C0}}{M_{X0}} \leq 1$

F = m • a FG = m • g a = 1250•V²/H
F = deceleration force [N] F_G = force due to weight [N] m = load mass [kg] a = deceleration [m/s²] g = gravitational acceleration 9,81 [m/s²] V = velocity [m/s] H = stroke length of shock absorber [mm]

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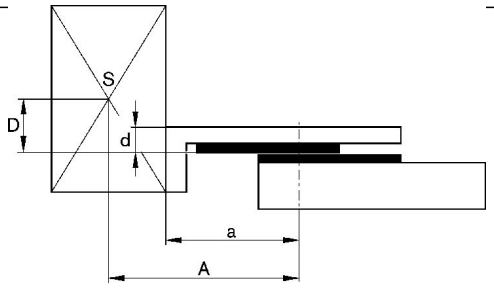
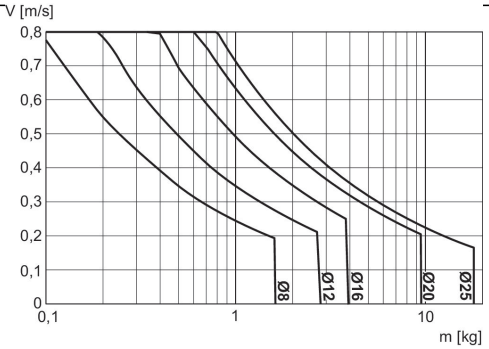
Correction factor (a, d)

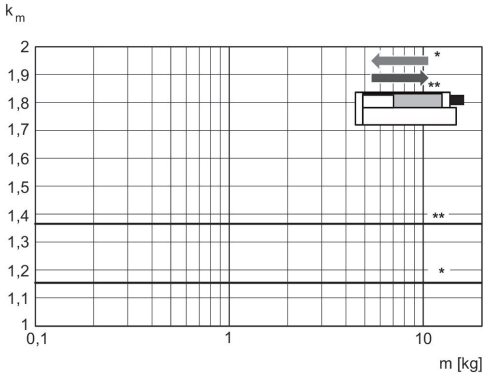


Maximum moving mass



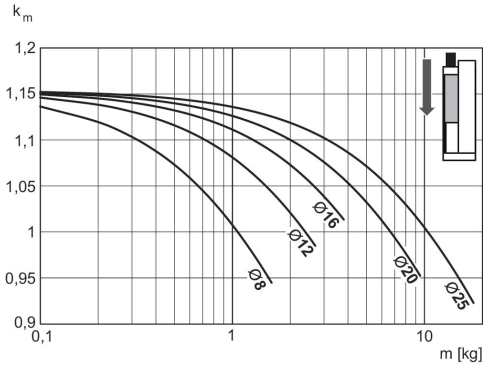
V = velocity [m/s]
m = mass

Correction factor for required speed: retracting and extending, horizontal



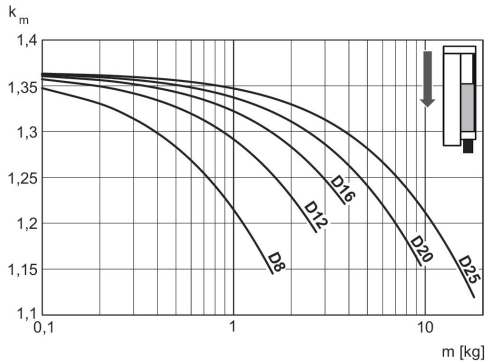
* retracting
** extracting
V = s/1000 • t • km
V = velocity [m/s]
S = stroke

Correction factor for required speed: extending, vertical, downwards



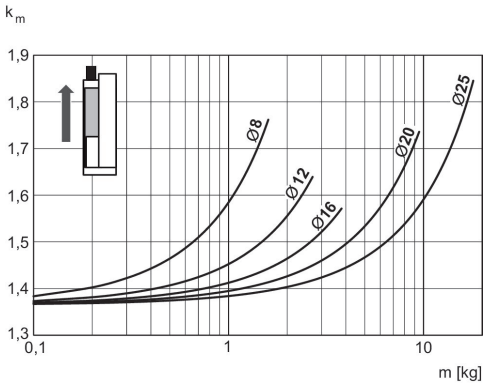
V = s/1000 • t • km
V = velocity [m/s]
S = stroke [mm]
t = time [s] for one stroke
m = mass

Correction factor for required speed: retracting, vertical, downwards



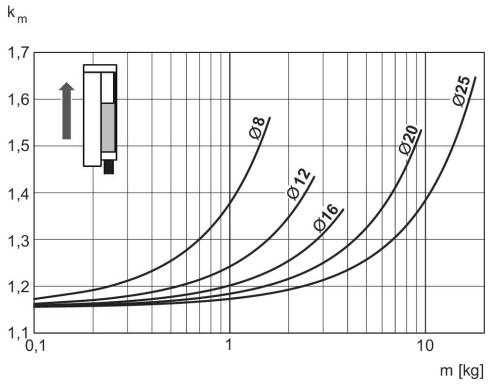
V = s/1000 • t • km
V = velocity [m/s]
S = stroke [mm]
t = time [s] for one stroke
m = mass

Correction factor for required speed: retracting, vertical, upwards



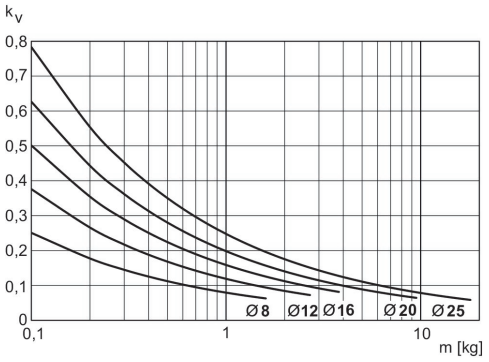
V = s/1000 • t • km
V = velocity [m/s]
S = stroke [mm]
t = time [s] for one stroke
m = mass

Correction factor for required speed: extending, vertical, upwards



V = s/1000 • t • km
V = velocity [m/s]
S = stroke [mm]
t = time [s] for one stroke
m = mass

Max. extracting speed



V = √s • kv
V = velocity [m/s]
S = stroke [mm]
m = mass

Load capacity

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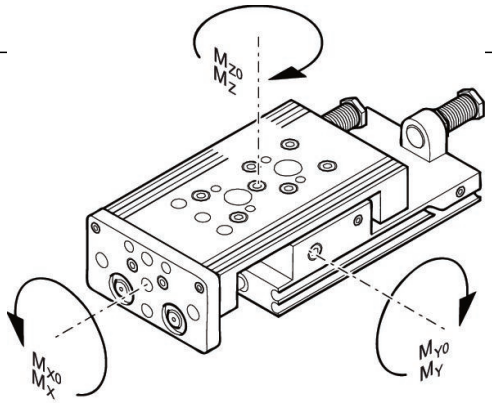

M = max. permissible torque

Part No.	Piston Ø	S	a [mm] 1)	d [mm] 2)	Mx0 3)	My0 3)	Mz0 3)	Mx 4)	My 4)
R480643788	8	10	45	14	7	7	7	1.1	1.9
R480643789	8	20	50	14	7	7	7	1.1	1.9
R480643790	8	30	60	14	7	7	7	1.1	1.9
R480643791	8	40	70	14	7	7	7	1.1	1.9
R480643792	8	50	80	14	9	13	13	1.3	2.9
R480643793	8	80	125	14	13	25	25	1.3	3.8
R480643794	12	10	54.5	16	20	14	14	4.2	4.4
R480643795	12	20	59.5	16	20	14	14	4.2	4.4
R480643796	12	30	64.5	16	20	14	14	4.2	4.4
R480643797	12	40	74.5	16	20	14	14	4.2	4.4
R480643798	12	50	84.5	16	23	19	19	4.6	5.6
R480643799	12	80	125	16	33	32	32	5.2	8.2
R480643800	12	100	145	16	33	32	32	5.2	8.2
R480643801	16	10	55.5	15	35	25	25	6.5	6.6
R480643802	16	20	60.5	15	35	25	25	6.5	6.6
R480643803	16	30	65.5	15	35	25	25	6.5	6.6
R480643804	16	40	75.5	15	35	25	25	6.5	6.6
R480643805	16	50	85.5	15	38	29	29	7	7.6
R480643806	16	80	126	15	74	58	58	8.7	12.8
R480643807	16	100	146	15	74	58	58	8.7	12.8
R480643808	16	125	198.5	15	88	118	118	15.2	31.2
R480643809	16	150	223.5	15	88	119	119	15.2	31.2
R480643810	20	10	60.5	20	87	57	57	9.6	12
R480643811	20	20	65.5	20	87	57	57	9.6	12
R480643812	20	30	70.5	20	87	57	57	9.6	12
R480643813	20	40	80.5	20	87	57	57	9.6	12
R480643814	20	50	90.5	20	93	65	65	10	13.3
R480643815	20	80	130.5	20	116	99	99	11.7	19
R480643816	20	100	150.5	20	116	99	99	11.7	19
R480643817	20	125	201	20	126	136	136	19	40.6
R480643818	20	150	233.5	20	126	152	152	19	45.4

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Part No.	Piston Ø	S	a [mm] 1)	d [mm] 2)	Mx0 3)	My0 3)	Mz0 3)	Mx 4)	My 4)
R480643819	20	200	296	20	126	179	179	19	53.4
R480643820	25	10	67.5	24	100	90	90	22.9	19.5
R480643821	25	20	72.5	24	100	90	90	22.9	19.5
R480643822	25	30	77.5	24	100	90	90	22.9	19.5
R480643823	25	40	87.5	24	100	90	90	22.9	19.5
R480643824	25	50	96.5	24	100	90	90	15.3	13
R480643825	25	80	137	24	110	129	129	18.8	20.8
R480643826	25	100	157	24	110	129	129	18.8	20.8
R480643827	25	125	201	24	145	180	180	20.4	44.1
R480643828	25	150	236.5	24	145	201	201	20.4	49.2
R480643829	25	200	299	24	145	236	236	20.4	57.8

Part No.	Mz 4)
R480643788	1.9
R480643789	1.9
R480643790	1.9
R480643791	1.9
R480643792	2.9
R480643793	3.8
R480643794	4.4
R480643795	4.4
R480643796	4.4
R480643797	4.4
R480643798	5.6
R480643799	8.2
R480643800	8.2
R480643801	6.6
R480643802	6.6
R480643803	6.6
R480643804	6.6
R480643805	7.6
R480643806	12.8
R480643807	12.8
R480643808	31.2
R480643809	31.2
R480643810	12
R480643811	12
R480643812	12
R480643813	12
R480643814	13.3
R480643815	19
R480643816	19
R480643817	40.6
R480643818	45.4
R480643819	53.4
R480643820	19.5
R480643821	19.5

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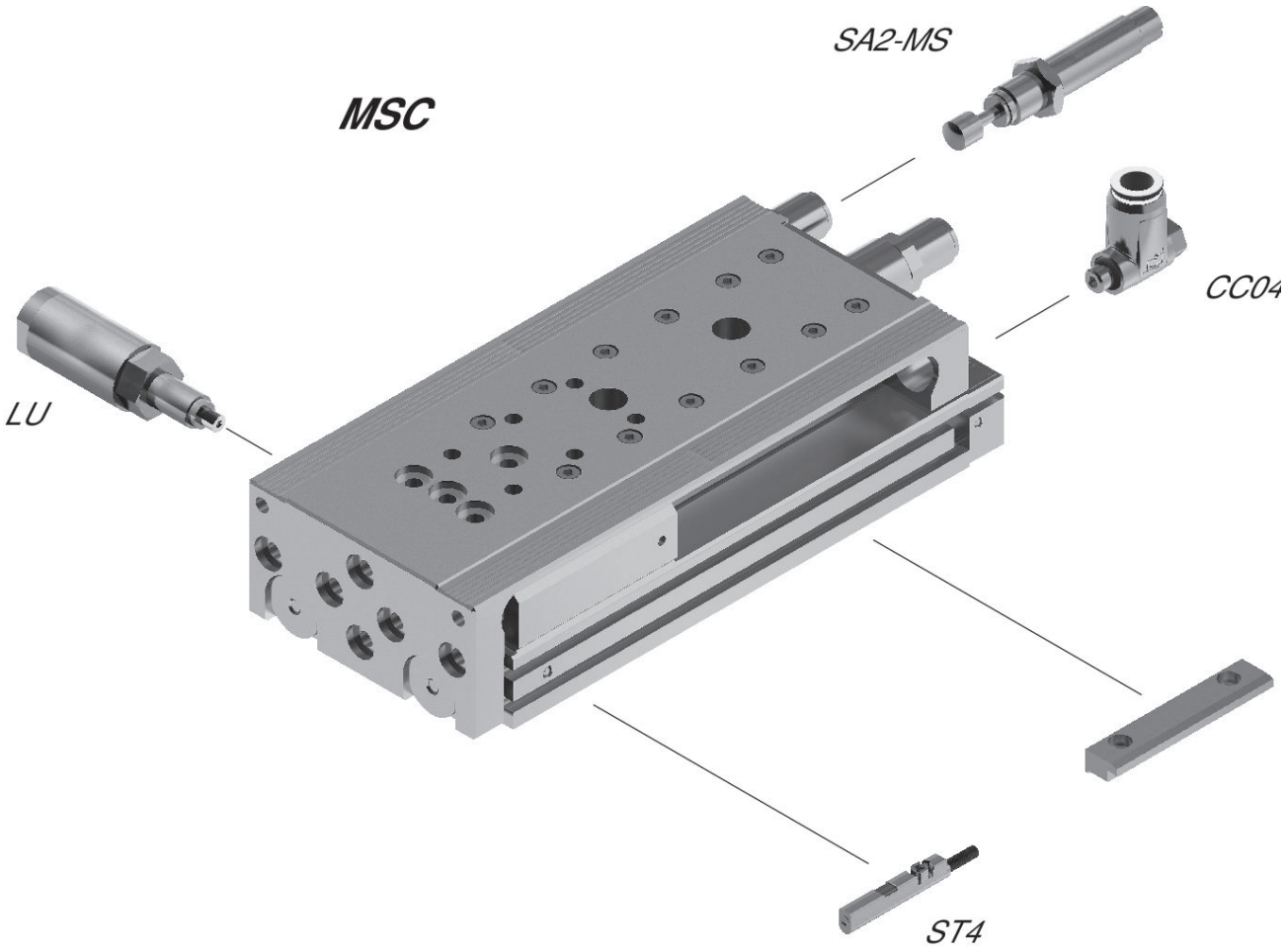
Part No.	Mz 4)
R480643822	19.5
R480643823	19.5
R480643824	13
R480643825	20.8
R480643826	20.8
R480643827	44.1
R480643828	49.2
R480643829	57.8

S = stroke
1) Correction factor (a)
2) Correction factor (b)
3) Static moment M [Nm]
4) Dynamic moment M [Nm]

Overview drawing



NOTE: This overview drawing is only for orientation to indicate where the various accessory parts can be fastened to the cylinder. The illustration has been simplified for this purpose. It is thus not possible to derive the dimensions from this overview.

Weight of moving parts [kg]

Piston Ø	S=10	S=20	S=30	S=40	S=50	S=80	S=100	S=125	S=150
8	0.14	0.14	0.155	0.165	0.195	0.265	–	–	–
12	0.255	0.255	0.26	0.28	0.315	0.403	0.46	–	–

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Piston Ø	S=10	S=20	S=30	S=40	S=50	S=80	S=100	S=125	S=150
16	0.375	0.375	0.375	0.4	0.45	0.615	0.65	0.725	0.765
20	0.655	0.655	0.655	0.69	0.765	0.985	1.035	1.2	1.29
25	1	1	1	1.1	1.225	1.45	1.625	1.885	2.085

Piston Ø	S=200
8	–
12	–
16	–
20	1.54
25	2.445

S = stroke